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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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R 4414-D

EXAMINER

MM91/0212

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ABRAMS, N

ART UNIT

PAPER NUMBER

2839

DATE MAILED:

02/12/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/208962

Applicant(s)

Examiner

Abrams

Group Art Unit

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

## Priority Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

## Status

- ☒ Responsive to communication(s) filed on 12-14-00
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- ☒ Claim(s) 1, 2, 4-20, 22-45 is/are pending in the application.
- ☐ Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- ☒ Claim(s) 1, 2, 4-20, 22-45 is/are rejected.
- ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- ☐ Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
  - ☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been received.
  - ☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_
  - ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_
- ☒ Notice of References Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other \_\_\_\_\_

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Parent case paragraph, first S.N. must be updated when possible.

Term "fused" as used in claim 18, line 9 and claim 32 appears to lack basis in the spec., pages 14, 15. If present it should be pointed out or alternatively, it should be added. Note that use of such term was discussed in paper no 8 (4-19-00) and found properly included. Also note that entire spec. Discussion of solder ball use is on page 14, line 17, 18 and 24-26.

Page 14, lines 13-26 include numerous amendments that would render printing difficult.

These lines should be replaced by a single addition to be placed below line 12 and that includes all changes. Alternatively a replacement page 14 could be submitted.

Claims 1-17, 41 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 12 "mounting" appears incorrect. *changed to "mating" na*

Claims 18-31, 43, 32-40, 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Romine taken in view of Noschese, Seidler, ~~Lin~~, ~~Teka~~, Electronics and Swamy.

*obvious*  
For claim 18, <sup>1</sup>to form the Romine connectors with three columns of contacts. Note, figs 5, 6 contact 32 with solder pellet (mass) 52. It would have been obvious to form the contact to be "fused" to the solder pellet. Such change produces no unexpected result and is further suggested by the fusion (heating) teachings of Noschese, figs. 9-12, Lin, col. 1, and Swamy. Also obvious to join the fig. 5, 6 or fig 10 contacts to solder masses or balls in the manner of Swamy at 212, Teka, Electronics, Seider or Noschese. Using Noschese, or Teka it would have been

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obvious to apply solder masses to the Romine contact legs 70, fig. 10, but with the masses joined by fusion to legs 70 rather than gripped by tabs. The solder masses would tend to space the contacts from the substrate as in Teka, Lin and Romine, fig. 6.

For claim 43, note the figs. 6, 10 recesses formed by walls 55. Also obvious to form the recesses 54 to "full enclose" contact ends (feet) 50, 70.

For claim 32, obvious to join the pellet 52 or the other reference solder masses to the Romine contacts figs. 5, 6, 10 by fusion (heating) as discussed above. Swamy solder balls 212 appears to be fused to contact ends 210; <sup>not</sup> ~~no~~ would such feature be an unobvious variation.

> Claims 18-31, 43, 32-40, 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feldman or Kandybowski, either one taken in view of Romine, Noschese, Seidler, Lin, Teka, Electronics and Swamy.

Obvious to form the Feldman contacts, 20, 40, 80, 90 or the Kandybowski contacts 50, fig. 4 with solder masses fused to the contact mounting portions in view of the secondary references applied as above.

In addition, addition of a solder mass also suggested by Romine at 52. Obvious to add such pellet to the Kandybowski contact ends 54. Obvious to join solder masses to contacts by fusion in view of Lin, Swamy, Romine at 52 and Noschese, figs. 9, 13.

> Claims 1-17, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fedder in view of Noschese, Swamy, Romine, Lin, Seidler and Electronics and Feldman.

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The Fedder contacts (fig. 5) 110, 102 are arranged as recited in claim 1, lines 10-16. Also obvious to form contacts 110, 102 in a connector mounted vertically on the substrate like those of Feldman, fig. 3. It also would have been obvious to form contact ~~tails~~ 108, 118 to be surface mounted and to include solder masses in view of Feldman, at 22, 102, 42, 82, 92 figs. 3, 4, 5, 9, Noschese, figs. 12, 13, Lin at 32, Swamy, Romine at 52, Seidler, figs. 9, 10, 16 and Electronics. ~~Also~~ <sup>As</sup> one example, obvious to form tails 108, 118 in the manner of the Romine, fig. 6 tails 50 with solder masses 52 or with solder balls as in Swamy, or alternatively to be bent like Romine tails 70 but with solder masses added to such bent tails in view of Noschese at 92, Seidler, figs. 9, 16 and Electronics. For claim 42, obvious to form recesses about contact bent tails in view of Feldman, figs. 3, 8, 9.

Alternatively, obvious to use contact tails 108, 118 as shown but with solder masses added thereto in view of Noschese at 28.

Applicant's arguments filed with the amendment have been fully considered but they are not persuasive. The Fedder contacts 102, 110 are seen to be basically arranged in an I-beam manner. Nor does such aspect relate to the "solder masses" aspect to which this case is mainly directed.

As to the remarks, page 8, "remaining a distance away" feature, see Romine, fig. 6. In addition, solder ball use would inherently cause such spacing as in Lin, fig. 4, Seidler, figs. 9, 10, 16 and Swamy. Page 9, "fused" feature relates to obvious variant. Clearly obvious to join the Swamy solder balls 212 to pads 210 by fusion. Similarly obvious to join solder <sup>balls to contacts like</sup> those of Feldman

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by fusion (heating), see Noschese, col. 7, lines 20-30. Term "fused" as used without any discussion in the spec. should not be found to distinguish over solder ball securement. <sup>as taught by Swamy</sup>

The page 9 ~~Swamy~~ fused to contact "before" feature is readable on Romine, Swamy, Teka, etc. All of the cited prior art solder masses are joined to contacts "before" the connectors are mounted onto a substrates. Page 10, "further from housing" clearly reads on Romine, fig. 6 device and would read on Feldman type contacts with solder masses fixed to legs 22, 42, etc. Page 13, for claims 13, 42-45, etc. note "recesses" in mating surface of housings of Romine, fig. 10, Kandybowski, fig. 4 at 60, and Feldman, fig. 3. In addition, "recess" feature which is noted in spec. (page 14) with "no discussion" of purpose or advantage should not be found to provide patentable distinction over prior art.

As to Remarks, page 18, Romine, figs. 5, 6 discloses a connector mountable by solder masses 52 to a substrate 22, the solder joined to contacts prior to substrate mounting and the solder mass further from the housing than is the contact end 50. For Romine, fig. 10, on what basis does applicant refute that it would not have been obvious to form contact legs 70 with solder masses like those of Seider, fig. 9, Teka, Swamy, or Electronics. Placement of solder directly onto leads would facilitate securement of the connector to the substrate. In addition, the "fused" limitation as broad ~~by~~ disclosed does not define unobviously over the Romine adhesive use. These are only alternatively ways to mount solder masses to contacts or pads.

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Swamy, while not a typical connector is seen to provide a clear suggestion of use of solder balls on contacts like those of Romine, Kandybowski or Feldman. This would facilitate surface mounting as taught by Swamy.

Danner cited to show solder ball securement by fusion.

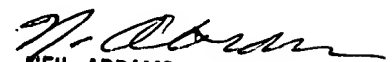
**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication should be directed to N. Abrams at telephone number (703) 308-1729.

Abrams/nt

2-7-01

  
NEIL ABRAMS  
EXAMINER  
ART UNIT 322